Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
DC voltage sources: single values	Zener reference	Comparison with reference standard	1	10	V	Voltage	1 V, 1.018 V, 10 V	0.3	µV/V	2	95%	Yes	DFM	1
DC voltage sources: low values	Zener reference, voltage source	Comparison with primary standard	0	1.018	V			40	nV	2	95%	No	DFM	2
DC voltage sources: low values	Zener reference, voltage source: voltage *U*	Comparison with working standards	1	10	V			Q [15, 37*U*], *U* in V	nV	2	95%	No	DFM	3
DC resistance standards and sources: intermediate values	Fixed resistors, resistance boxes	Comparison via DMM	10	10	kΩ	Temperature	22 °C to 24 °C	4	mΩ	2	95%	No	DFM	4
DC resistance standards and sources: intermediate values	Fixed resistors, resistance boxes	Comparison via DMM	1	100	Ω	Temperature	22 °C to 24 °C	5	µΩ/Ω	2	95%	Yes	DFM	5
DC resistance standards and sources: intermediate values	Fixed resistors, resistance boxes	Comparison via DMM	0.1	1000	kΩ	Temperature	22 °C to 24 °C	2	µΩ/Ω	2	95%	Yes	DFM	6
AC resistance: real component	Fixed resistor	Comparison: LCR meter	0.1	100	Ω	Frequency	100 Hz to 10 kHz	770	µΩ/Ω	2	95%	Yes	AREPA	7
AC resistance: real component	Fixed resistor	Comparison: LCR meter	0.1	100	kΩ	Frequency	100 Hz to 10 kHz	1000	µΩ/Ω	2	95%	Yes	AREPA	8
AC resistance: ac-dc difference	Fixed resistor	Comparison with AC-DC transfer standard	0.1	100	Ω	Frequency	100 Hz to 10 kHz	770	µΩ/Ω	2	95%	Yes	AREPA	8a
AC resistance: ac-dc difference	Fixed resistor	Comparison with AC-DC transfer standard	0.1	100	kΩ	Frequency	100 Hz to 10 kHz	1000	µΩ/Ω	2	95%	Yes	AREPA	8b
AC resistance: meters	LCR meter	Standard resistors	0.1	100	Ω	Frequency	100 Hz to 10 kHz	770	µΩ/Ω	2	95%	Yes	AREPA	8c

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
AC resistance: meters	LCR meter	Standard resistors	0.1	100	kΩ	Frequency	100 Hz to 10 kHz	1000	μΩ/Ω	2	95%	Yes	AREPA	8d
Capacitance: capacitance for low loss capacitors	Standard capacitor, variable capacitor	Comparison: capacitance bridge, LCR meter	0.01	1000	pF	Frequency	50 Hz to 10 kHz	8 to 260	μF/F	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	9
Capacitance: capacitance for low loss capacitors	Standard capacitor, variable capacitor	Comparison: capacitance bridge, LCR meter	0.001	10	μF	Frequency	50 Hz to 10 kHz	8 to 360	μF/F	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	10
Capacitance: capacitance for dielectric capacitors	Variable capacitor, capacitance box	Comparison: capacitance bridge, LCR meter	0.01	1000	pF	Frequency	50 Hz to 10 kHz	8 to 260	μF/F	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	10a
Capacitance: capacitance for dielectric capacitors	Variable capacitor, capacitance box	Comparison: capacitance bridge, LCR meter	0.001	10	μF	Frequency	50 Hz to 10 kHz	8 to 360	μF/F	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	10b
Capacitance: dissipation factor for low loss capacitors	Standard capacitor, variable capacitor	Comparison: capacitance bridge, LCR meter	0	4		Frequency	50 Hz to 10 kHz	2.0E-06 to 0.024		2	95%	No	AREPA Uncertainties are minimum and maximum values	11
Capacitance: dissipation factor for dielectric capacitors	Variable capacitor, capacitance box	Comparison: capacitance bridge, LCR meter	0	4		Frequency	50 Hz to 10 kHz	2.0E-06 to 0.024		2	95%	No	AREPA Uncertainties are minimum and maximum values	11a
Capacitance: meters	Capacitance bridge, LCR meter	Standard capacitors	0.01	1000	pF	Frequency	50 Hz to 10 kHz	8 to 260	μF/F	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	11b

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
Capacitance: meters	Capacitance bridge, LCR meter	Standard capacitors	0.001	10	µF	Frequency	50 Hz to 10 kHz	8 to 360	µF/F	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	11c
Inductance: self inductance, low values	Fixed inductor, variable inductor, inductance box	Comparison: LCR meter	0.1	1	mH	Frequency	100 Hz to 10 kHz	0.7 to 0.8	mH/H	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	12
Inductance: self inductance, intermediate values	Fixed inductor, variable inductor, inductance box	Comparison: LCR meter	0.001	1	H	Frequency	100 Hz to 10 kHz	0.3 to 6	mH/H	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	13
Inductance: meters	LCR meter	Standard inductors	0.1	1	mH	Frequency	100 Hz to 10 kHz	0.7 to 0.8	mH/H	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	13a
Inductance: meters	LCR meter	Standard inductors	0.001	1	H	Frequency	100 Hz to 10 kHz	0.3 to 6	mH/H	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	13b
AC voltage up to 1000 V: sources	Multifunction calibrator, AC voltage generator	AC-DC transfer difference	2	60	mV	Frequency	10 Hz to 20 kHz	74 to 1100	µV/V	2	95%	Yes	AREPA	14
AC voltage up to 1000 V: sources	Multifunction calibrator, AC voltage generator	AC-DC transfer difference	2	60	mV	Frequency	20 kHz to 200 kHz	74 to 1700	µV/V	2	95%	Yes	AREPA	15
AC voltage up to 1000 V: sources	Multifunction calibrator, AC voltage generator	AC-DC transfer difference	2	60	mV	Frequency	200 kHz to 1 MHz	370 to 3300	µV/V	2	95%	Yes	AREPA	16
AC voltage up to 1000 V: sources	Multifunction calibrator, AC voltage generator	AC-DC transfer difference	0.06	20	V	Frequency	10 Hz to 20 kHz	12 to 200	µV/V	2	95%	Yes	AREPA	17

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
AC voltage up to 1000 V: sources	Multifunction calibrator, AC voltage generator	AC-DC transfer difference	0.06	20	V	Frequency	20 kHz to 200 kHz	12 to 370	µV/V	2	95%	Yes	AREPA	18
AC voltage up to 1000 V: sources	Multifunction calibrator, AC voltage generator	AC-DC transfer difference	0.06	20	V	Frequency	200 kHz to 1 MHz	64 to 560	µV/V	2	95%	Yes	AREPA	19
AC voltage up to 1000 V: sources	Multifunction calibrator, AC voltage generator	AC-DC transfer difference	20	1000	V	Frequency	10 Hz to 100 kHz	16 to 130	µV/V	2	95%	Yes	AREPA	20
AC voltage up to 1000 V: sources	Multifunction calibrator, AC voltage generator	AC-DC transfer difference	20	40	V	Frequency	100 kHz to 200 kHz	35 to 70	µV/V	2	95%	Yes	AREPA	21
AC voltage up to 1000 V: meters	AC voltmeter, multimeter, multifunction transfer standard	AC-DC transfer difference	2	60	mV	Frequency	10 Hz to 20 kHz	74 to 1100	µV/V	2	95%	Yes	AREPA	14a
AC voltage up to 1000 V: meters	AC voltmeter, multimeter, multifunction transfer standard	AC-DC transfer difference	2	60	mV	Frequency	20 kHz to 200 kHz	74 to 1700	µV/V	2	95%	Yes	AREPA	15a
AC voltage up to 1000 V: meters	AC voltmeter, multimeter, multifunction transfer standard	AC-DC transfer difference	2	60	mV	Frequency	200 kHz to 1 MHz	370 to 3300	µV/V	2	95%	Yes	AREPA	16a
AC voltage up to 1000 V: meters	AC voltmeter, multimeter, multifunction transfer standard	AC-DC transfer difference	0.06	20	V	Frequency	10 Hz to 20 kHz	12 to 200	µV/V	2	95%	Yes	AREPA	17a
AC voltage up to 1000 V: meters	AC voltmeter, multimeter, multifunction transfer standard	AC-DC transfer difference	0.06	20	V	Frequency	20 kHz to 200 kHz	12 to 370	µV/V	2	95%	Yes	AREPA	18a
AC voltage up to 1000 V: meters	AC voltmeter, multimeter, multifunction transfer standard	AC-DC transfer difference	0.06	20	V	Frequency	200 kHz to 1 MHz	64 to 560	µV/V	2	95%	Yes	AREPA	19a

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
AC voltage up to 1000 V: meters	AC voltmeter, multimeter, multifunction transfer standard	AC-DC transfer difference	20	1000	V	Frequency	10 Hz to 100 kHz	16 to 130	µV/V	2	95%	Yes	AREPA	20a
AC voltage up to 1000 V: meters	AC voltmeter, multimeter, multifunction transfer standard	AC-DC transfer difference	20	40	V	Frequency	100 kHz to 200 kHz	35 to 70	µV/V	2	95%	Yes	AREPA	21a
AC current up to 100 A: sources	Multifunction calibrator, AC current generator	AC/DC transfer difference, comparison: current transformer, current shunt	0.001	5	mA	Frequency	10 Hz to 10 kHz	10 to 260	µA/A	2	95%	Yes	AREPA	22
AC current up to 100 A: sources	Multifunction calibrator, AC current generator	AC/DC transfer difference, comparison: current transformer, current shunt	0.001	5	mA	Frequency	10 kHz to 100 kHz	10 to 230	µA/A	2	95%	Yes	AREPA	23
AC current up to 100 A: sources	Multifunction calibrator, AC current generator	AC/DC transfer difference, comparison: current transformer, current shunt	0.005	20	A	Frequency	10 Hz to 10 kHz	10 to 100	µA/A	2	95%	Yes	AREPA	24
AC current up to 100 A: sources	Multifunction calibrator, AC current generator	AC/DC transfer difference, comparison: current transformer, current shunt	0.005	20	A	Frequency	10 kHz to 100 kHz	10 to 120	µA/A	2	95%	Yes	AREPA	25
AC current up to 100 A: sources	Multifunction calibrator, AC current generator	AC/DC transfer difference, comparison: current transformer, current shunt	20	100	A	Frequency	10 Hz to 5 kHz	60 to 330	µA/A	2	95%	Yes	AREPA	26

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
AC current up to 100 A: meters	AC ammeter, multimeter, multifunction transfer standard	AC/DC transfer difference, comparison: current transformer, current shunt	0.001	5	mA	Frequency	10 Hz to 10 kHz	10 to 260	µA/A	2	95%	Yes	AREPA	22a
AC current up to 100 A: meters	AC ammeter, multimeter, multifunction transfer standard	AC/DC transfer difference, comparison: current transformer, current shunt	0.001	5	mA	Frequency	10 kHz to 100 kHz	10 to 230	µA/A	2	95%	Yes	AREPA	23a
AC current up to 100 A: meters	AC ammeter, multimeter, multifunction transfer standard	AC/DC transfer difference, comparison: current transformer, current shunt	0.005	20	A	Frequency	10 Hz to 10 kHz	10 to 100	µA/A	2	95%	Yes	AREPA	24a
AC current up to 100 A: meters	AC ammeter, multimeter, multifunction transfer standard	AC/DC transfer difference, comparison: current transformer, current shunt	0.005	20	A	Frequency	10 kHz to 100 kHz	10 to 120	µA/A	2	95%	Yes	AREPA	25a
AC current up to 100 A: meters	AC ammeter, multimeter, multifunction transfer standard	AC/DC transfer difference, comparison: current transformer, current shunt	20	100	A	Frequency	10 Hz to 1 kHz	60 to 330	µA/A	2	95%	Yes	AREPA	26a
AC power: single phase (f <= 400 Hz)	Power meter, power converter, wattmeter	Voltage and current (AC/DC transfer difference), phasemeter	1E-06	1	W	Frequency	10 Hz to 400 Hz	20 to 270	µW/VA	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	27
						Current	10 µA to 100 mA							
						Voltage	100 mV to 10 V							
						Power factor	0 to 1, inductive or capacitive							

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
AC power: single phase (*f* <= 400 Hz)	Power meter, power converter, wattmeter	Voltage and current (AC/DC transfer difference), phasemeter	0.001	20	kW	Frequency	10 Hz to 400 Hz	24 to 170	µW/VA	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	29
						Current	100 mA to 20 A							
						Voltage	10 V to 1000 V							
						Power factor	0 to 1, inductive or capacitive							
AC power: single phase (*f* <= 400 Hz)	Power meter, power converter, wattmeter	Voltage and current (AC/DC transfer difference), phasemeter	20	100	kW	Frequency	10 Hz to 400 Hz	74 to 355	µW/VA	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	31
						Current	20 A to 100 A							
						Voltage	10 V to 1000 V							
						Power factor	0 to 1, inductive or capacitive							
AC power: single phase (*f* <= 400 Hz)	Power meter, power converter, wattmeter	Voltage and current (AC/DC transfer difference), phasemeter	100	1000	kW	Frequency	10 Hz to 400 Hz	74 to 780	µW/VA	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	32
						Current	100 A to 1000 A							
						Voltage	1000 V							
						Power factor	0 to 1, inductive or capacitive							
AC energy: single phase (*f* <= 400 Hz)	Energy meter	Voltage and current (AC/DC transfer difference), phasemeter, time interval	0.001	10000	J	Frequency	10 Hz to 400 Hz	21 to 270	µJ/VAs	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	33
						Current	10 µA to 100 mA							
						Voltage	100 mV to 10 V							
						Power factor	0 to 1, inductive or capacitive							

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
						Measurement time	1 ks to 10 ks							
AC energy: single phase (*f* <= 400 Hz)	Energy meter	Voltage and current (AC/DC transfer difference), phasemeter, time interval	0.01	200	MJ	Frequency	10 Hz to 400 Hz	25 to 170	µJ/VAs	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	35
						Current	100 mA to 20 A							
						Voltage	10 V to 1000 V							
						Power factor	0 to 1, inductive or capacitive							
						Measurement time	1 ks to 10 ks							
AC energy: single phase (*f* <= 400 Hz)	Energy meter	Voltage and current (AC/DC transfer difference), phasemeter, time interval	200	1000	MJ	Frequency	10 Hz to 400 Hz	80 to 360	µJ/VAs	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	37
						Current	20 A to 100 A							
						Voltage	10 V to 1000 V							
						Power factor	0 to 1, inductive or capacitive							
						Measurement time	1 ks to 10 ks							
AC energy: single phase (*f* <= 400 Hz)	Energy meter	Voltage and current (AC/DC transfer difference), phasemeter, time interval	1	10	GJ	Frequency	10 Hz to 400 Hz	95 to 840	µJ/VAs	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	38
						Current	100 A to 1000 A							
						Voltage	1000 V							
						Power factor	0 to 1, inductive or capacitive							
						Measurement time	1 ks to 10 ks							

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
AC power: single phase (*f* > = 400 Hz)	Power meter, power converter, wattmeter	Voltage and current (AC/DC transfer difference), phasemeter	1E-06	1	W	Frequency	400 Hz to 100 kHz	20 to 1760	µW/VA	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	28
						Current	10 µA to 100 mA							
						Voltage	100 mV to 10 V							
						Power factor	0 to 1, inductive or capacitive							
AC power: single phase (*f* > = 400 Hz)	Power meter, power converter, wattmeter	Voltage and current (AC/DC transfer difference), phasemeter	0.001	20	kW	Frequency	400 Hz to 100 kHz	24 to 1760	µW/VA	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	30
						Current	100 mA to 20 A							
						Voltage	10 V to 1000 V							
						Power factor	0 to 1, inductive or capacitive							
AC power: single phase (*f* > = 400 Hz)	Power meter, power converter, wattmeter	Voltage and current (AC/DC transfer difference), phasemeter	20	100	kW	Frequency	400 Hz to 100 kHz	74 to 1780	µW/VA	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	31a
						Current	20 A to 100 A							
						Voltage	10 V to 1000 V							
						Power factor	0 to 1, inductive or capacitive							
AC energy: single phase (*f* > = 400 Hz)	Energy meter	Voltage and current (AC/DC transfer difference), phasemeter, time interval	0.001	10000	J	Frequency	400 Hz to 100 kHz	21 to 1760	µJ/VAs	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	34
						Current	10 µA to 100 mA							
						Voltage	100 mV to 10 V							

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
						Power factor	0 to 1, inductive or capacitive							
						Measurement time	1 ks to 10 ks							
AC energy: single phase ($f >= 400$ Hz)	Energy meter	Voltage and current (AC/DC transfer difference), phasemeter, time interval	0.01	200	MJ	Frequency	400 Hz to 100 kHz	25 to 1760	µJ/VAs	2	95%	Yes	AREPA Uncertainties are minimum and maximum values	36
						Current	100 mA to 20 A							
						Voltage	10 V to 1000 V							
						Power factor	0 to 1, inductive or capacitive							
						Measurement time	1 ks to 10 ks							
High DC voltage: high voltage sources	DC kilovolt source	Comparison	1	40	kV			1.2 to 2.1	mV/V	2	95%	Yes	AREPA	39a
High DC voltage: high voltage meters	DC kilovolt meter	Comparison	1	40	kV			1.2 to 2.1	mV/V	2	95%	Yes	AREPA	39b
AC high voltage: sources	High voltage AC source	Comparison	1	40	kV	Frequency	10 Hz to 1 kHz	21 to 30	mV/V	2	95%	Yes	AREPA	39a
AC high voltage: sources	High voltage AC source	Comparison	1	28	kV	Frequency	50 Hz to 60 Hz	1.4 to 5	mV/V	2	95%	Yes	AREPA	39c
AC high voltage: sources	High voltage AC source	Comparison	1	6	kV	Frequency	10 Hz to 1 kHz	12 to 24	mV/V	2	95%	Yes	AREPA	39e
AC high voltage: meters	High voltage AC meter	Comparison	1	40	kV	Frequency	10 Hz to 1 kHz	21 to 30	mV/V	2	95%	Yes	AREPA	39b
AC high voltage: meters	AC high voltge meter	Comparison	1	28	kV	Frequency	50 Hz to 60 Hz	1.4 to 5	mV/V	2	95%	Yes	AREPA	39d

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
RF power: absolute power on coaxials	Power source	Power sensor	1E-09	0.2	W	Frequency	0.1 GHz to 18 GHz	0.4 to 7.2	%	2	95%	Yes	AREPA	41a
						Impedance	50 ohm							
RF power: absolute power on coaxials	Power source	Power sensor	1E-09	0.01	W	Frequency	0.1 GHz to 3 GHz	0.4 to 6	%	2	95%	Yes	AREPA	41b
						Impedance	75 ohm							
Scalar RF reflection coefficient: on coaxials	Passive device	SWR-bridge	0	1		Frequency	0.1 GHz to 18 GHz	0.006 to 0.2		2	95%	No	AREPA	45a
						Impedance	50 ohm							
Scalar RF reflection coefficient: on coaxials	Passive device	SWR-bridge	0	1		Frequency	0.1 GHz to 3 GHz	0.003 to 0.61		2	95%	No	AREPA	45b
						Impedance	75 ohm							
Scalar RF reflection coefficient: on coaxials	Passive device	SWR-bridge	0	1		Frequency	200 Hz to 4.5 MHz	0.001 to 0.014		2	95%	No	AREPA	45c
						Impedance	120 ohm							
Scalar RF attenuation: on coaxials	Passive device	Comparison with reference attenuator	0	120	dB	Frequency	0.1 GHz to 18 GHz	0.04 to 0.26	dB	2	95%	No	AREPA	42
Scalar RF reflection and attenuation: directivity	Multiports	Precision load, sliding load	0	1		Frequency	0.1 GHz to 18 GHz	0.002 to 0.33		2	95%	No	AREPA	46a
						Impedance	50 ohm							

Electricity and Magnetism, Denmark, DANIAmet-DFM (Danish Institute of Fundamental Metrology), DANIAmet-AREPA (AREPA Test and Calibration A/S)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty						
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Service Provider Comments**	**NMI Service Identifier**
Scalar RF reflection and attenuation: directivity	Multiports	Precision load, sliding load	0	1		Frequency	0.1 GHz to 3 GHz	0.002 to 0.34		2	95%	No	AREPA	46b
						Impedance	75 ohm							
Scalar RF reflection and attenuation: directivity	Multiports	Precision load, sliding load	0	1		Frequency	200 Hz to 4.5 MHz	0.001 to 0.014		2	95%	No	AREPA	46c
						Impedance	120 ohm							
Electrical conductivity: liquids	Solutions	Measurement in calibrated cells	2	25	mS/m	Temperature	15 °C to 30 °C	1.3E-03		2	95%	Yes	DFM	47a
Electrical conductivity: liquids	Solutions	Measurement in calibrated cells	0.025	6	S/m	Temperature	15 °C to 30 °C	1.0E-03		2	95%	Yes	DFM	47b